REMARKS

Claims 1-15 are pending with claims 10-15 added by this paper.

Claim Rejections Under 35 U.S.C. § 112, Second Paragraph and Claim Amendments

Claims 1-9 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Applicants have replaced the terminology "characterized in that" with either --comprising-- or --further comprising-- (e.g., claims 1 and 6) or --wherein-- (e.g., claim 2). In addition, applicants have deleted the term "nitrating" before "reagent" in claim 1 and have revised the language in claim 9. Consequently, applicants respectfully submit that these rejections should be withdrawn.

In addition, several other claim amendments have been made. The article --a-- or --an-- has been added before various substances (see, e.g., claim 1 and the term "aromatic"), some phraseology has been rewritten for clarity by deleting superfluous language and rewriting the terminology in active voice (e.g., last lines of claims 6 and 7), articles have been added before the preamble term "process" (e.g., claim 1), Markush groups have been rewritten (e.g., claim 1), superfluous language has been deleted ('("nitrating acid")' in e.g., claim 1), passive voice has been rewritten as active voice (see, e.g., claim 1), and ranges have been hyphenated to further clarify that the end points are encompassed in the defined ranges (e.g., claim 6). Applicants respectfully submit that these amendments and the amendments made under 35 U.S.C. § 112, second paragraph, do not narrow the scope of the claims. Moreover, the latter amendments are primarily made to conform the claims to typical US prosecution practice.

Claim Rejections Under 35 U.S.C. § 102(b)

Claims 1-9 stand rejected as allegedly being anticipated by WO 99/22858 (British Nuclear Fuels). Applicants respectfully traverse these rejections.

British Nuclear Fuels discloses a method of reacting an aromatic compound with a reacting agent, where the reacting agent is immiscible with the aromatic compound.

Particularly, the nitration reaction is carried out without substantial mixing of the unreacted aromatic compound and the reacting agent. See page 1, lines 17-31 and page 4, lines 3-7, and Figs. 1-6. The building of a stable interface layer is essential for its continuous extraction process. See page 4, lines 3-7. Consequently, British Nuclear Fuels discloses a reaction being conducted in two phases which are immiscible and separated after leaving the mixer. See Figs. 1 and 2.

In marked contrast, the present invention provides a reaction taking place in a homogeneous liquid phase in a microreactor. See, e.g., page 3, lines 1-4.

Moreover, the microreactor disclosed in British Nuclear Fuels would generally not be useful in the present invention, especially it would not be suitable for the nitration of basic reactants. In the present invention, the microreactor has channels (relevant to claim 1) which create intensive mixing of the reactants. Thus, a multi-lamination of the reaction liquid takes place resulting in numerous interface layers and effecting a homogeneous mixture in which the nitration takes place. Thereafter, the reaction product can be separated at the end of the reaction by the addition of water. In marked contrast, British Nuclear Fuels does not allow this possibility because the educt and product are extracted together into the aqueous phase and can only be separated after neutralization.

According to the present invention, it is possible to proceed with the reaction in a non-aqueous medium. As an example, mixing fuming nitric acid (100% by weight) with acetic anhydride or dichloromethane build a homogeneous mixture suitable for this reaction. The kinetic conditions of this system are entirely different from the aqueous nitration systems of British Nuclear Fuels, because water decreases the reaction time. Also, as an example, N_2O_2 in an organic solvent may be used for nitration in a homogeneous mixture. However, in a system such as that disclosed in British Nuclear Fuels consisting of an aqueous and organic phase, the N_2O_2 would disassociate. As a consequence, both selectivity and yield of product would

decrease considerably. Thus, these reactions conducted in a microreactor having crossing channels considerably increases the resulting yield.

A further advantage of the present invention is that reaction can take place in a closed system under controlled conditions to mix intensely each element of volume during the whole reaction time, and thus, the volume pressure and temperature conditions are the same. Therefore, the danger of explosions can be avoided almost entirely.

Moreover, British Nuclear Fuels fails to disclose a microreactor having channels for intensive the mixing of reactants (relevant to claim 1). Rather, British Nuclear Fuels provides a microreactor feeding reactants in separate phases and subsequently removing the same.

Finally, applicants respectfully request that the Examiner acknowledge receipt that copies of the certified copies of the priority documents have been received from the International Bureau.

In view of the above, favorable reconsideration is courteously requested. If there are any remaining issues which can be expedited by a telephone conference, the examiner is courteously invited to telephone counsel at the number indicated below.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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